

## New business opportunities from the circular economy

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The development of Lapland's economy is based on the sustainable use of nature. Local raw materials are utilised and refined locally, and local companies operate innovatively as part of business ecosystems. New kinds of business are emerging in Lapland from the circular economy and the utilisation of industrial side streams. The goal is to propel companies to generate added value for each other through the effective utilisation of one another's side streams, products, technology and services. Semi-finished products with a total value of up to EUR 500 million have been identified in this area (Ministry of Economic Affairs and Employment, 2018).

The theme of Lumen magazine's last issue of 2018 is the new opportunities of Lapland's business life. With regard to new opportunities, what the texts highlighted the most was the circular economy and the ongoing work on its development at Lapland University of Applied Sciences. Lapland University of Applied Sciences invests in the development of side stream utilisation expertise, and this work is now starting to show in the everyday life of the UAS, too. The UAS focuses on utilising technologies, identifying and testing business models, working together with lines of business and developing the RDI activities of the bioeconomy and circular economy together with actors in the sector.

Good and systematic anticipatory efforts are being made in Lapland with regard to what the future needs of different industries are, says Elsi Malkki, authorised representative of the Lapland Chamber of Commerce,

in her column in which she explains the background of the education theses published by the Chambers of Commerce in the spring of 2018. Education should be planned in a good, long-term and agile manner. This agility can be found in areas with the best knowledge for evaluating the changes in the competence needs of working life and businesses (Chamber of Commerce, 2018). These areas should be provided with more decision-making power and capacity to respond with regard to, for example, the rapid targeting of training, says Malkki.

The role of education and RDI activities in the identification and development of business opportunities is significant. Lapland University of Applied Sciences is closely involved in the development of innovative circular economy projects. In cooperation with Lapland's business life, the aim is to identify opportunities in which the circulation and growth of products, raw materials, materials as well as the value attached to them are utilised in business for as long as possible. In their piece, Maarit Timonen and Kari Laasasenaho highlight the interest in developing the circular economy at universities of applied sciences. They have calculated that Lapland University of Applied Sciences has about 100 different projects either underway, in the application phase or completed during 2018. About one third of them have been associated with the circular economy in one way or another. In addition to industry, the circular economy is also an overarching thing in health care, wellness services and tourism.

In order to be realised, circular economy business requires a comprehensive view of value production for different stakeholders, therefore challenging current business models and networks. The purpose of circular economy business models is to keep resources in circulation for as long as possible. One company alone will not close the materials loop; partners are needed for that. Value is generated in value circles, so business models in which value is generated only for one company are not suitable for the circular economy. Value is created in cooperation with different companies in the most resource-efficient way possible, taking into account the product's entire life cycle. Business models can be divided into, for example, three models: slowing the loop, closing the loop and narrowing the loop (VTT, 2017).

Slowing the loop refers to providing performance or a service instead of selling a product. This means introducing sharing platforms that enable, for example,

the leasing and exchange of underutilised machinery and goods. Solutions aimed at extending the service life of products also slow the loop. This starts as early as in the design of the products. Product reparability, durability, upgradability as well as the possibility of remanufacturing are features used to extend the service life of products.

Closing the loop refers to maximising the value of used products, collecting and acquiring waste materials and resources and converting them to generate new value. The focus of the EU's waste policy is on the prevention of waste generation and the steering of waste into utilisation. The aim is to minimise the amount of waste generated and to develop sensible forms of utilisation for waste. In industry, these form a symbiosis in which the residual yield of one process is utilised as a raw material in another process. For example, the waste generated during textile production, such as cutting waste, should either be utilised as material in your own production or offered to others for use. Utilising production waste is easy because it comes in large quantities and its composition is identifiable. Production waste does not contain components of finished products that hinder utilisation, such as rivets, zippers, buttons or other additions. New utilisation methods are sought for different types of post-consumer waste. Chemical recycling, for example, is being developed at a rapid rate. It involves, for example, the fibres contained in textiles being separated by chemical methods instead of the previously widely used mechanical treatment based on tearing.

In her article, Reeta Sipola cites both increasing the value added locally and various specialisation solutions as the development needs of income formation in rural enterprises in accordance with the principles of the circular economy. The side streams of commercial fishing and partly also those of reindeer herding remain largely unutilised or underutilised at present, say Petri Muje and Aki Ranta. They write in their article about how the use of reindeer organs and burbot, vendace and roach as raw materials was tested in the project "Bio-waste as raw material – circular economy of commercial inland fisheries and reindeer herding" together with Asian restaurants in Lapland. Experiments can change practice and thinking when different actors are allowed to get involved.

Narrowing the loop takes place when less resources are used and less waste, emissions and pollution are generated. Resource efficiency and zero waste thinking should be part of all of a company's operations. At their simplest, the business models of the circular economy can mean the digitalisation, enhancement and servitisation of functions as well as the development of solutions that are more appropriate for the customer and the environment.

In her article, Anzelika Krastina looks to the future and notes that EU funding is changing. The upcoming changes have not yet been finalised, but an increase in the self-funded portion is planned. Support for smart specialisation networks and company modernisations will be strongly reflected in future funding programmes.

The switch to the circular economy and adoption of new business models also requires new expertise. The most important are the ability to sell results instead of products, utilise information and technologies and also to implement a change in a company's practices. In his piece, Kalle Santala highlights how Lapland University of Applied Sciences has prepared to fill the skills gap of circular economy. It offers a diverse range of further education, such as 10-credit circular economy study modules in the field of natural resources and construction engineering, bioeconomy and circular economy conversion training and bioeconomy specialisation training.

E-teaching is always a topical theme in the development of education. Sirpa Kokkonen examines the accessibility of education from the point of view of e-teaching. The article by Kaisa Heiskari and Sini Kestilä describes the online training developed for fledgling tourism companies in the project "Matkailuyrityksen verkkokoulutus – Tourism Business ABC". In their article, Rauni Leinonen, Marika Kunnari, Rauni Moisio and Outi Törmänen examine the regional development partnership between Kajaani University of Applied Sciences and Lapland University of Applied Sciences in the process of developing joint e-teaching. Heidi Kaihua and Laura Mämmelä, in turn, describe the integration of teaching in the project "Matkailualueen kohdekokemuksen kehittämismalli" (Tourist area destination experience development model).

Heartfelt thanks to all the writers. The texts exude a real spirit of development and getting things done. I would like to express my gratitude to Elsa Malkki whose message highlights the genuine concern of stakeholders regarding education cuts and their consequences while also expressing the confidence that is felt regionally towards the competence of educational organisations.

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